

CLAIMS

What is claimed is:

1. A method of recycling wastepaper comprising:
fractionating a wastepaper stream into a long fiber stream and a sludge stream;
combusting the sludge stream at a vapor temperature of 1100° F or more to
create ash;
reducing the particle size of the ash; and
metering the ash into the long fiber stream.
2. The method of claim 1, wherein fractionating the wastepaper stream
comprises fractionating the wastepaper stream in a washing stage.
3. The method of claim 1, wherein combusting the sludge stream comprises
drying the sludge stream prior to combustion.
4. The method of claim 3, wherein drying the sludge stream comprises
pressing the sludge stream.
5. The method of claim 3, wherein drying the sludge stream comprises
drying the sludge stream with steam produced during ongoing combustion.
6. The method of claim 1, wherein combusting the sludge stream comprises
combusting the sludge stream in the presence of aqueous ammonia.
7. The method of claim 1, wherein combusting the sludge stream comprises
combusting the sludge stream in a low oxygen environment.

8. The method of claim 1, wherein combusting the sludge stream comprises combusting the sludge stream in an oven and maintaining a fluidized bed temperature in the oven of at least 1400° F.

9. The method of claim 1, wherein combusting the sludge stream comprises combusting the sludge stream at a vapor temperature of 1700° F or more.

10. The method of claim 9, wherein combusting the sludge stream comprises maintaining the vapor temperature of at least 1700° F for a predetermined period of time.

11. The method of claim 1, wherein reducing the particle size of the ash comprises reducing approximately 90% of the ash by weight to particle sizes of 40 micrometers or less.

12. The method of claim 1, wherein reducing the particle size of the ash comprises grinding the ash to reduce the particle size.

13. The method of claim 1, wherein reducing the particle size of the ash comprises removing unwanted large particles of the ash.

14. The method of claim 1, wherein combusting the sludge stream comprises recovering energy generated from combustion and utilizing the energy during production of paper products.

15. The method of claim 1, wherein metering the ash into the long fiber stream comprises metering a predetermined amount of ash into the long fiber stream.

16. A method of recycling wastepaper comprising:
fractionating a wastepaper stream into a long fiber stream and a sludge stream;

drying the sludge stream;
combusting the sludge stream at a vapor temperature of 1700° F or more to
create ash;
grinding the ash to reduce the particle size of the ash; and
metering a predetermined amount of ash into the long fiber stream.

17. The method of claim 16, wherein fractionating the wastepaper stream comprises fractionating the wastepaper stream in a washing stage.

18. The method of claim 16, wherein drying the sludge stream comprises drying the sludge stream with steam produced during ongoing combustion.

19. The method of claim 16, wherein drying the sludge stream comprises pressing the sludge stream.

20. The method of claim 16, wherein combusting the sludge stream comprises combusting the sludge stream in the presence of aqueous ammonia.

21. The method of claim 16, wherein combusting the sludge stream comprises combusting the sludge stream in a low oxygen environment.

22. The method of claim 16, wherein combusting the sludge stream comprises combusting the sludge stream in an oven while maintaining a fluidized bed temperature of the oven of at least 1400° F.

23. The method of claim 16, wherein combusting the sludge stream comprises maintaining the vapor temperature of at least 1700° F for a predetermined period of time.

24. The method of claim 16, wherein grinding the ash comprises grinding the ash to reduce approximately 90% of the ash by weight to particle sizes of 40 micrometers or less.

25. The method of claim 16, wherein grinding the ash comprises removing unwanted large particles of the ash.

26. The method of claim 16, wherein combusting the sludge stream comprises recovering energy generated from ongoing combustion and utilizing the energy during production of paper products.

27. A method of recycling wastepaper:
fractionating a wastepaper stream in a washing stage to separate the wastepaper stream into a long fiber stream and a sludge stream;
pressing and drying the sludge stream to remove water therefrom;
combusting the sludge stream in an oven to create ash, maintaining the oven at a vapor temperature of at least 1700° F for a predetermined period of time, a low oxygen environment, and a fluidized bed temperature of at least 1400° F, and controlling in the oven selective catalytic reduction, wherein ongoing combustion in the oven generates energy in the form of steam which is at least partially used to dry the sludge stream and at least partially used during the production of paper products;
grinding the ash to reduce approximately 90% of the ash by weight to particle sizes of 40 micrometers or less;
removing unwanted large particles of the ash; and
metering a predetermined amount of ash into the long fiber stream.